

U.S. Environmental Protection Agency
Workforce Plan
2020 – 2022

Prepared by:

Office of Human Resources

Office of Mission Support

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Executive Summary

The U.S. Environmental Protection Agency's mission – to protect human health and the environment – is both straightforward and profound. EPA has a duty to deliver a cleaner, safer and healthier environment for all Americans and future generations. To be successful, it takes a diverse workforce of talented and dedicated people working together. This FY 2020 – FY 2022 Strategic Workforce Plan provides a comprehensive approach to maintain and continually develop the workforce needed to achieve the agency's mission.

EPA's Strategic Plan sets organizational direction and measurable program objectives. It provides the basis for determining not only financial requirements, but also needed human capital resources. Having the right complement of diverse individuals with essential skills enables the agency to accomplish the organization's strategic goals and objectives, now and in the future. This is the basis for EPA's Workforce Plan, underscoring the people factor in achieving results.

This Plan mirrors EPA's Strategic Plan with three over-arching objectives:

- Build a leadership pipeline to ensure leadership continuity;
- Identify and close competency gaps across the enterprise, especially within the agency's Mission Critical Occupations; and
- Implement employee engagement best practices using data-driven, research-based approaches.

These objectives have been chosen because EPA conducts its critical work while facing challenges, such as:

- A large percentage of the workforce is retirement eligible;
- Trends suggest the talent pool of entry level scientists and engineers who are US citizens is shrinking, while competition for this smaller talent pool is increasing; and,
- Workforce and leadership priorities shift depending on factors external-to-the agency, such as administration priorities or changes in the law.

Building leadership continuity, identifying and closing skills gaps, and keeping employees engaged and committed enables EPA to meet its core mission regardless of its challenges. It also moves us forward in becoming an employer of choice within the Federal government.

Our people continue to be our priority. That is why the strategies outlined in this Plan require the attention of all of our stakeholders – from our first-line supervisors who know their staff best, to senior leaders who understand future trends and help shape the resiliency of the Agency. Regardless of your role at EPA, we encourage you to join us in implementing this Plan as we continue to improve performance, measure outcomes, support ongoing learning and recognize our people – EPA's greatest resource.

1. Introduction to the Workforce Plan

The U.S. Environmental Protection Agency recognizes the value of workforce planning, a strategic process ensuring the Agency maintains an appropriately skilled labor force to effectively meet its mission. The EPA FY 2020-2022 Workforce Plan satisfies the requirements of 5 C.F.R. 250 (Code of Federal Regulations) and applies to all full-time and part-time classified, “at will,” and wage employees. The Plan presents an overview of current and projected workforce trends along with profiles of core occupations. It also proposes analyses and strategies to mitigate future gaps in both skills and occupations. Implementation of this Plan supports the agency in acquiring, engaging, developing and retaining the workforce talent necessary to meet agency goals and objectives, now and in the future.

This document is organized into eight major sections, each delving deeper into the main topic. Various sources and data points were used in writing this Plan including, but not limited to the EPA’s 2018-2022 Strategic Plan, the agency’s official personnel and payroll system, and documents development by the U.S. Office of Personnel Management and the U.S. General Accountability Office. Due to the fluid and iterative nature of workforce planning, the action plans accompanying this document are outlined and tracked on the EPA’s intranet to allow for real-time updates.

2. Introduction to EPA

EPA strives to remain an employer of choice. To accomplish this, the agency has three overall workforce planning objectives for FY 2020-2022. These are to ensure mission success, both now and in the future by:

- Building a leadership pipeline/talent pool for leadership continuity;
- Identifying and closing competency gaps across the enterprise, with special emphasis on the agency’s Mission Critical Occupations (MCOs); and
- Implementing employee engagement best practices using data-driven, research-based approaches.

To understand how these objectives were developed and their importance to the agency, it is necessary to understand the EPA’s history, mission, structure and workforce.

2.1 History of EPA

The EPA is an independent federal agency established on December 2, 1970. Born in the wake of elevated concern about environmental pollution, the EPA’s creation consolidated a variety of federal research, monitoring, standard-setting and enforcement activities to ensure robust environmental protection. Since its inception, the EPA has been working for a cleaner, healthier environment for the American people. The EPA is led by its Administrator and has approximately 14,000 employees geographically located throughout the country. Headquartered in Washington, D.C., the EPA has ten

regional offices and regional laboratories responsible for several states and territories, various field locations and two major EPA-owned facilities in Research Triangle Park, NC and Cincinnati, OH.

2.2 The EPA Mission

The EPA mission is to protect human health and the environment. The agency does this by ensuring:

- Americans have clean air, land and water.
- National efforts to reduce environmental risks are based on the best available scientific information.
- Federal laws protecting human health and the environment are administered and enforced fairly, effectively and as Congress intended.
- Environmental stewardship is integral to U.S. policies concerning natural resources, human health, economic growth, energy, transportation, agriculture, industry and international trade.

The agency works with its customers—all parts of society (communities, individuals, businesses and state, local and tribal governments)—to promote access to accurate information and to effectively participate in managing human health and environmental risks. Contaminated lands and toxic sites are cleaned up by potentially responsible parties and revitalized; and chemicals in the marketplace are reviewed for safety.

To accomplish its mission, EPA:

- Develops and enforces regulations: When Congress writes an environmental law, EPA implements it by writing regulations, often setting national standards for states and tribes to enforce through their own regulations. If there is a failure to meet the national standards, EPA assists through education and outreach. The agency also enforces EPA regulations and helps companies understand the requirements.
- Provides grants: Nearly half of the EPA budget is dedicated to grants for state environmental programs, non-profits and educational institutions. The money is used for a wide variety of projects, for example, scientific studies allowing the agency to make data-driven decisions regarding community cleanups.
- Researches environmental issues: At laboratories located throughout the nation, EPA identifies and solves environmental problems. To foster learning, the agency shares information with other countries, private sector organizations, academic institutions, tribal governments and other Federal and state agencies.
- Collaborates with partners: The agency does not protect the environment on its own. It works with businesses, non-profit organizations, and state and local governments through dozens of

partnerships to conserve water and energy, minimize greenhouse gases, re-use solid waste and determine pesticide risks. In return, EPA shares information and publicly recognizes its partners.

- Teaches people about the environment: Protecting the environment is everyone's responsibility and starts with understanding the issues. The basics include reducing how much energy and materials are used and promoting reuse and recycling.
- Publishes information: EPA informs the public about its activities through written materials and its website. Greater details may be found on the [EPA's website](https://www.epa.gov).

2.3 The EPA Organizational Structure

EPA is headed by the Office of the Administrator and is comprised of 12 Headquarters Offices and 10 Regional Offices. The overall organizational structure is shown in Figure 2.1 and at <https://www.epa.gov>.

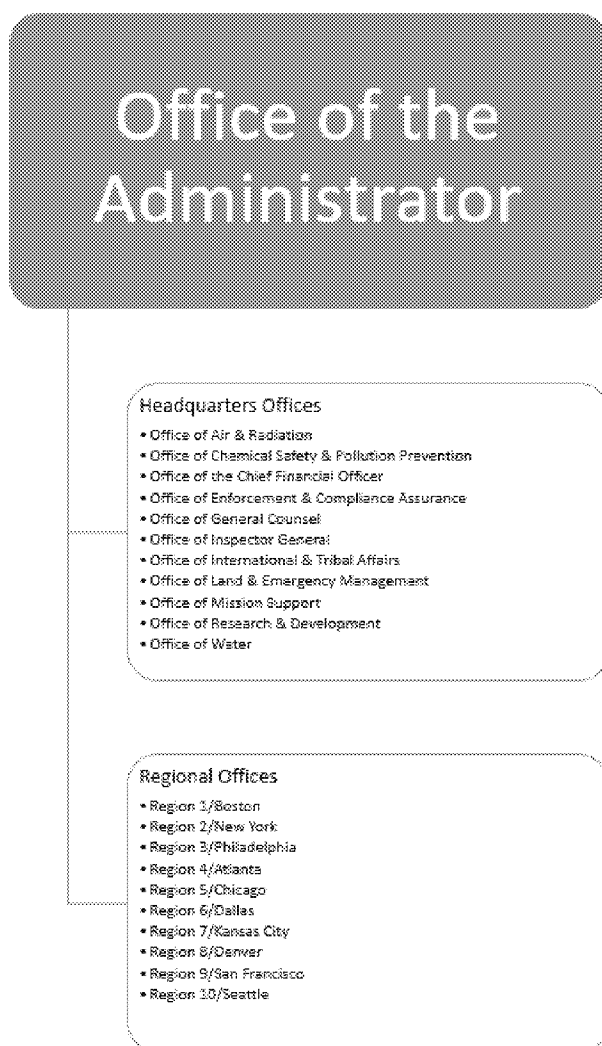


Figure 2.1: EPA Organizational Structure

2.4 The EPA Strategic Plan

The EPA FY 2018 – FY 2022 Strategic Plan has three over-arching goals:

- (1) Refocus the agency back to its core mission;
- (2) Restore power to the states through cooperative federalism; and
- (3) Lead the agency through improved processes and adhere to the rule of law.

Goal 3 has five objectives, with the last one being:

Objective 3.5 - Improve Efficiency and Effectiveness: Provide proper leadership and internal operations management to ensure that the agency is fulfilling its mission.

This Objective was established to support the agency's mission to protect human health and the environment. To do this, "EPA will improve the efficiency and effectiveness of its business processes. Focus areas will include financial, facility, human resource, contract, grant and information technology/information management." The agency's Strategic Plan goes on to note, "EPA will ensure its workforce is positioned to accomplish the agency's mission effectively by providing access to quality training and development opportunities that will improve staff's and managers' skills, knowledge and performance, and prepare them to capitalize on opportunities that advance progress. The EPA will improve its workforce planning and management, strengthen its Senior Executive Service and focus on developing and maintaining a highly-skilled technical workforce." This Workforce Plan serves as the foundation for the agency to accomplish this objective.

3. Introduction to Workforce Planning

The purpose of the Workforce Plan is to provide focus and direction to the EPA's human capital management. This is necessary to meet current and future workforce requirements and prevent surprises in maintaining the employees, skills and positions needed to successfully achieve the agency's core mission today and in the future. To be successful, the EPA must take a comprehensive approach to workforce planning through a process framework allowing management to plan staffing decisions based on organizational mission, strategic direction and objectives, budgetary resources and a set of desired workforce skills and competencies. This process takes both a near- and a long-term view of organizational needs and how those needs may change based on internal and external factors. The process is simple in theory but depends on a rigorous and comprehensive analysis of the organization's work, workforce and strategic direction to succeed.

At the EPA, workforce planning is approached from a plain language perspective to create an easily understood and easily utilized plan to:

- Identify and define the functional work and occupations of the current workforce;
- Develop a future-state agency workforce and plan for helping the agency transform to a more agile organization; and

- Develop a plan to manage and minimize staffing and competency overages and gaps.

The office responsible for workforce planning is the Office of Mission Support/Office of Human Resources. OMS leads the agency's core mission support functions to improve efficiency, coordination, and customer experience for internal customers, stakeholders and the public, including protection of the EPA's facilities and other critical assets nationwide, acquisition (contract) activities, grants management, human capital, information technology and information management activities. OHR, led by the agency's Deputy Chief Human Capital Officer, in consultation with the agency's CHCO, has primary responsibility for developing, implementing and evaluating the agency's Workforce Plan.

4. Current Workforce Analysis

4.1 Workforce Overview

As of the end of FY19, the EPA had 13,747 employees. Of the current employees, almost 99 percent (13,561) are permanent. Of these permanent employees, 2 percent (261) are in the Senior Executive Service and 13 percent (1,810) are categorized as supervisors. The following demographics are for permanent staff only and were obtained from the EPA's personnel and payroll system.

Among permanent staff, the ratio of supervisors to employees is approximately 1:7 and there are twice as many employees in the EPA's field locations as there are in the Washington, DC locations (9129 to 4371, respectively). The gender mix of all staff shows slightly more females than males (52 percent female versus 48 percent male) and 49.7 years is the average age of all employees. Figure 4.1 illustrates the self-identified ethnic mix of staff.

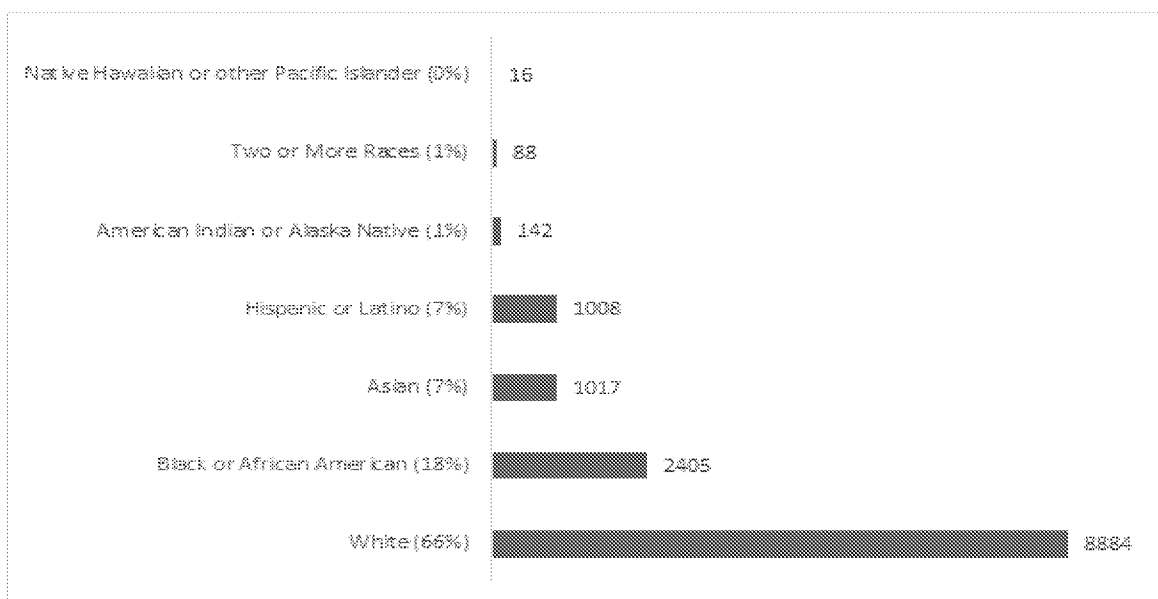


Figure 4.1: EPA Employees by Ethnicity/Race

A diverse workforce—in the broadest sense of the term—makes the EPA a more effective and healthy

organization. A diverse EPA is better able to relate to the American People and develops more creative and workable solutions to the issues it faces. Though the EPA has made gains in diversity, it recognizes the agency can be more representative of the population it serves. Therefore, the agency will continue to optimize inclusive diversity efforts using data-driven approaches in tandem with the workforce goals described in this Plan. As examples, the EPA's Administrator recently expanded the agency's Diversity and Inclusion Advisory Council to include Chairs of the Special Emphasis Programs and Non-Labor Employee Groups. During FY19, OHR created and maintained agreements with institutions of higher education and professional organizations such as the Society of Hispanic Professional Engineers, Gallaudet University and National Hispanic Environmental Council to help broaden the agency's recruitment efforts. Also, the EPA's Office of Civil Rights is currently conducting a barrier analysis on the upward mobility of Hispanics for grades GS-12 through the Senior Executive Service.

The EPA's workforce is diverse not only in terms of race and ethnicity, but also regarding individuals with disabilities. From FY12 to FY19, the agency increased its population of employees with disabilities from 6 percent to 8 percent (1,112 individuals). Of those employees, 1.8 percent self-identified as having a targeted disability.

The EPA has a highly educated and well-compensated workforce, with 77 percent of employees holding a bachelor's degree or higher and 77 percent of the workforce holding positions at General Service pay grades of 13, 14 and 15. Within the agency, positions in the science and engineering fields comprise 45 percent of all occupations, followed by environmental protection specialists and program analysts (22 percent), and business management support (15 percent). Figure 4.2 below displays the occupational categories present within the agency, as of the end of FY19.

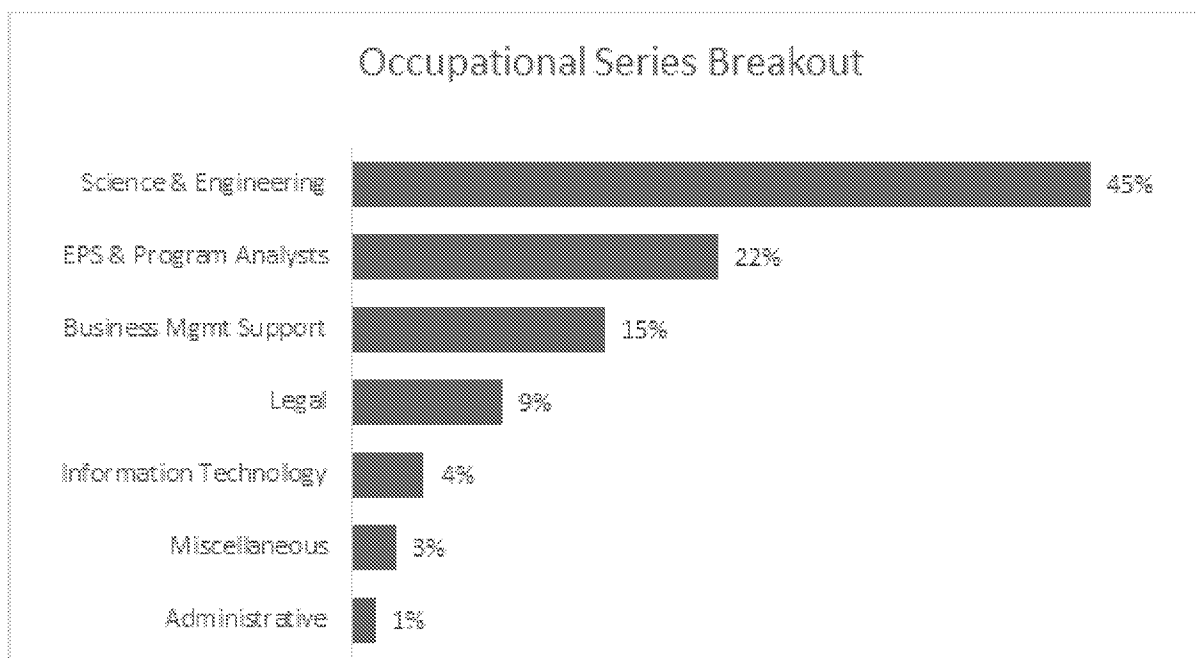


Figure 4.2: EPA Occupational Categories

The largest age group at the EPA is age 50 to 59 (36 percent), followed by individuals in the age 40 to 49 category (24 percent). The 29 years-of-age and under group is the smallest with 5 percent of employees falling in this category. As with many Federal agencies, the EPA has a high percentage of

employees currently eligible for retirement (25 percent). Figure 4.3 and Figure 4.4 highlight the retirement eligibility of the EPA's staff.

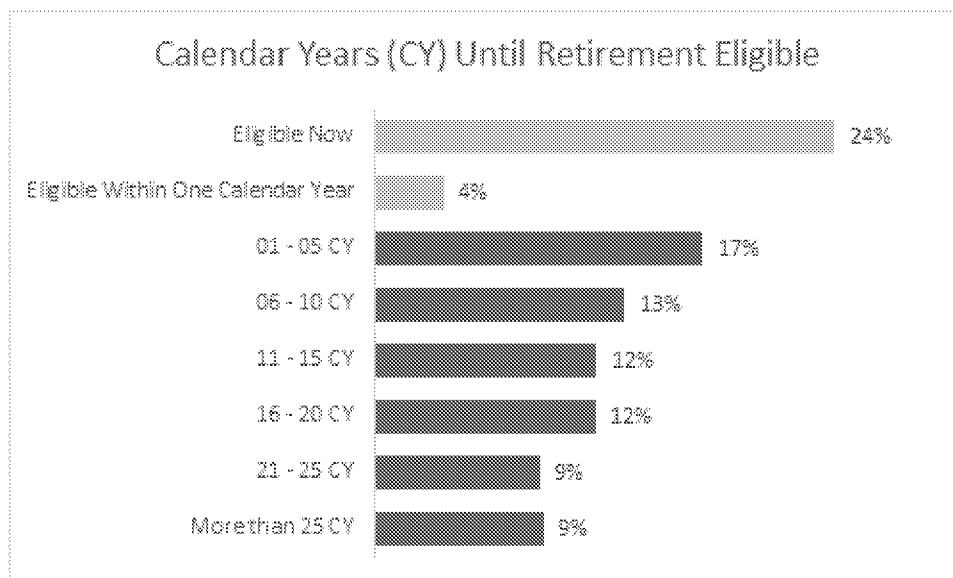


Figure 4.3: Retirement Eligibility, Current and Number of Years Before Retirement

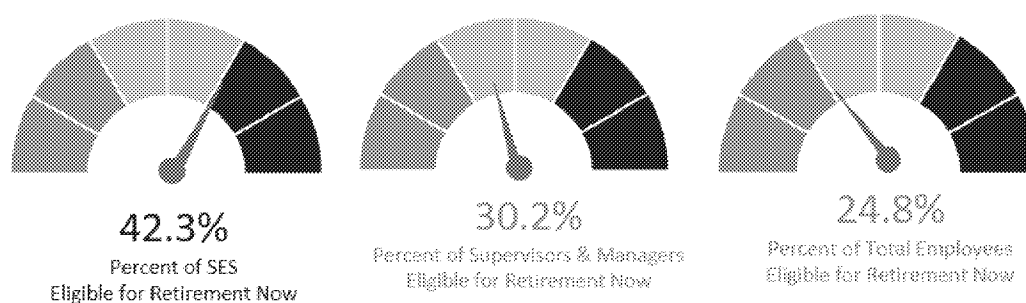


Figure 4.4: Retirement Eligibility by Management Level

As displayed in Figure 4.4, 42.3 percent of the agency's Senior Executive Service members are currently eligible to retire. This was a driving force for building leadership pipelines/talent pools to ensure leadership continuity as a first, critical workforce planning objective. Such activities include, but are not limited to, offering training opportunities for seasoned mid-level employees who are not contemplating retirement. These employees need both career advancement and engagement incentives to keep them with the agency so the EPA can benefit from their knowledge and experience as they continue to grow professionally. Similarly, the agency continues to promote mentoring to new hires, particularly those just entering federal service and beginning their work careers. The agency also recognizes implementing enterprise-wide succession planning and knowledge transfer activities are paramount to retain highly qualified employees in key positions, especially its MCOs.

The EPA identified a total of 11 MCOs required to maintain the agency's organizational capability to fulfill its mission. Of those 11, six are governmentwide occupations and five are specific to the EPA (Figure 4.5).

Governmentwide MCOs	
0110 - Economist	
0201 - Human Resources Management	
0511 - Auditing	
1102 - Contracting	
2210 - Information Technology Management (includes cybersecurity)	
Cybersecurity (all occupations, including 2210)	
Agency or Sub Agency Specific MCOs	
0401 - Biologists	
0819 - Environmental Engineer	
0830 - Mechanical Engineer	
1301 - Physical Scientists	
1320 - Chemists	

Figure 4.5: Mission Critical Operation for EPA

Figure 4.6 shows the near-term retirement eligibility of the EPA's agency-specific MCOs.

% Employees in MCOs Eligible for Retirement Between Now and the Next 2 Years (through 2022)				
Biologists (0401)	Environmental Engineers (0819)	Mechanical Engineers (0830)	Physical Scientists (1301)	Chemists (1320)
24%	42%	34%	32%	41%

Figure 4.6: EPA-Specific MCO Retirement Eligibility

As can be seen from the percentages in Figure 4.6, the agency has an immediate need to prepare for and mitigate the possible loss of expertise due to pending retirements of staff in MCO positions. This is where the EPA's second workforce planning priority, identifying and closing competency gaps across the enterprise, especially within the agency's MCOs, comes into play.

4.2 Gain and Loss Trends

The EPA workforce has been steadily shrinking over the past seven years from a high of approximately 18,000 employees in 2012 to approximately 13,700 (Figure 4.7).

EPA Workforce Plan for FY20-22

Total Employees

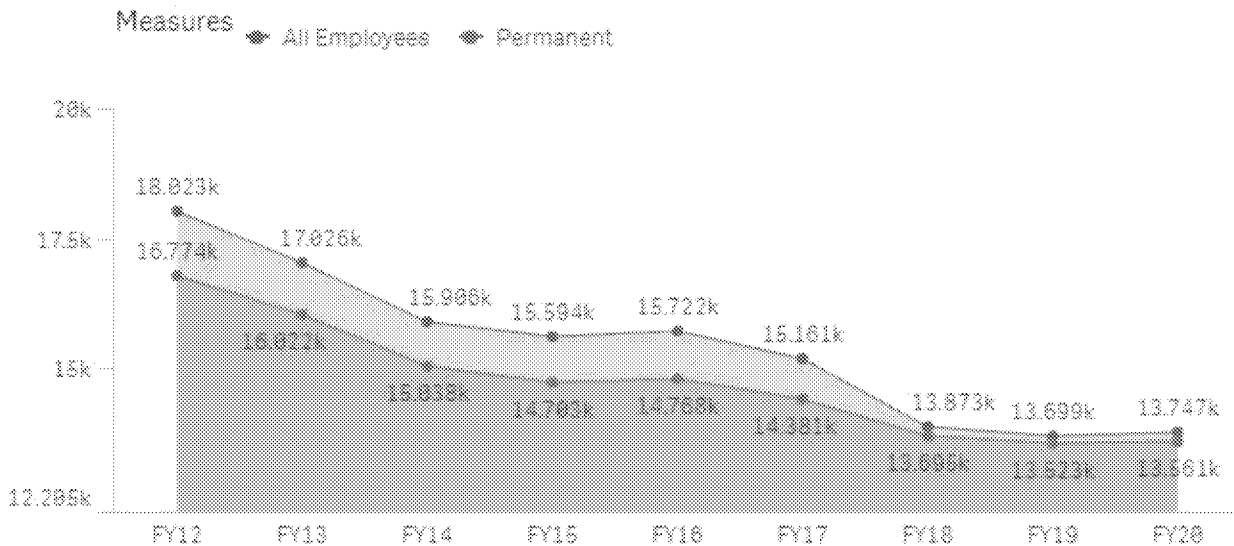


Figure 4.7: Total Workforce Level Trends

Several factors contributed to the EPA's overall reduction in staff including decreasing budgetary resources and restrictive hiring policies. To help strategically reshape the workforce given budget realities and the need to meet mission requirements, senior leadership offered multiple rounds of voluntary retirement incentives. Voluntary Early Retirement Authority (VERA) and Voluntary Separation Incentive Payments (VSIP) can be granted to agencies going through a substantial organizational change, such as downsizing, restructuring, reorganization or reshaping. These authorities offer incentives to increase voluntary separation allowing agencies to effectively restructure the workforce and avoid involuntary separation actions.

In 2014, 2015 and 2017 agency senior leaders offered VERA and VSIP to strategically reshape the workforce, meet mission requirements and manage the wave of impending retirements.

The following summarizes the intended goals of the three VERA/VSIP rounds:

- Reduce the real estate footprint of EPA facilities as specified in the Federal Assets Sale and Transfer Act of 2016;

- Reduce the number of non-SES supervisory positions and restructure non-supervisory GS-14 and GS-15 positions;

- Decrease or eliminate obsolete positions (e.g., events coordinators, secretaries, clerks and clerical assistants, information liaison specialists and printing officers);

- Strengthen the appropriate skill level in much needed competencies such as Next Generation communications and technology implementation, analytics, writing, project management, cybersecurity, modeling and computer sciences, and mathematics and statistics;

- Co-locate subject matter experts with their scientific field assets;

Consolidate and streamline program functions and activities; and

Manage the pending retirement wave.

The EPA's VERA/VSIP offerings aligned with the agency's continuing efforts to focus on core business services, while meeting the demand for a technologically sophisticated and analytical workforce as well as qualified IT security staff. Corresponding staff departures impacted calendar years 2014, 2015 and 2017.

In 2013, the thrust of the agency's VERA/VSIP efforts was to reduce and restructure administrative support positions – 16 of the 19 participating offices cited a change in administrative support needs as a basis for VERA/VSIP. A sample of the positions targeted for reduction included Miscellaneous Clerk and Assistant (0303), Secretary (0318), Office Automation Clerk (0326) and Environmental Protection Assistant (0029). A total of 456 employees accepted VERA/VSIP offers and departed the agency in 2014.

In 2014, the EPA announced another round of VERA/VSIP offerings. The rationales cited in the business cases - reduction of administrative positions and rebalancing of grade structure - were similar to the FY13 VERA/VSIP. In addition, some offices identified the need to reshape generalist positions and move to a more technical skill set. Employees who elected to accept the separation incentives were required to depart the agency by January 2015. A maximum of 647 positions were authorized for VERA/VSIP approval; 226 employees accepted offers and departed the agency. This brought the total number of VERA/VSIP departures from 2014-2015 to 682. Figure 4.8 provides summary information for the total departures, by grade level, resulting from use of VERA/VSIP during this timeframe. The agency saw the departures of many highly graded generalist and administrative staff, including many who were in non-supervisory GS14 and GS15 positions.

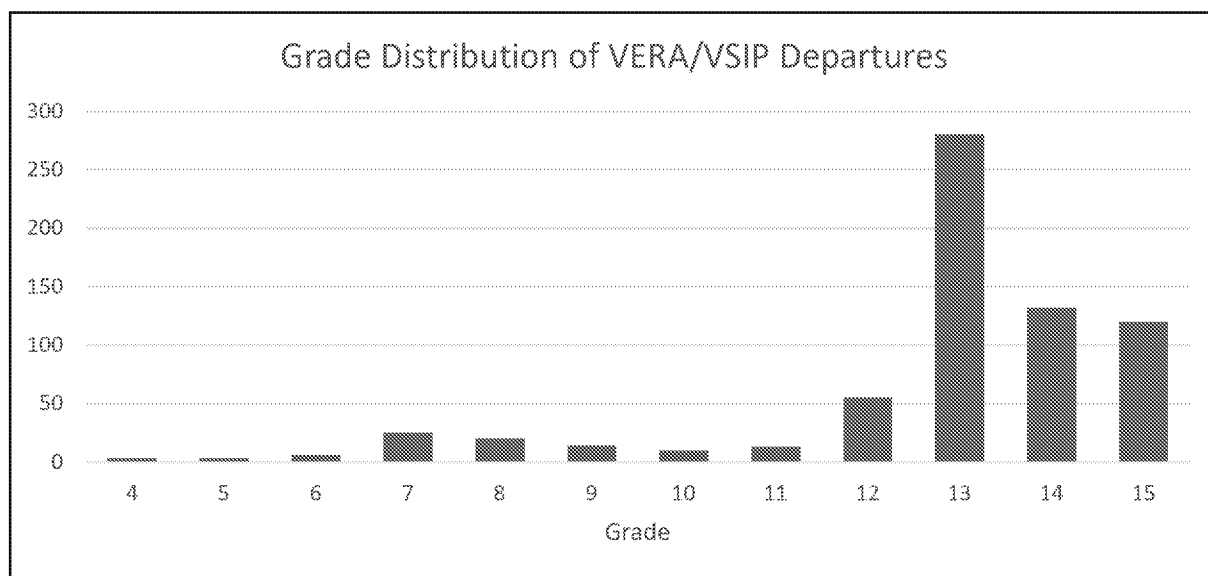


Figure 4.8: Grade Distribution of VERA/VSIP Departures

A third agencywide round of VERA/VSIP was offered in 2017 resulting in the departure of 375 employees. Since then, several smaller VERA/VSIP offerings were made to a limited group of employees, mainly due to the consolidation of space in some of the EPA's regional facilities.

As previously mentioned, the impact of attrition due to early and regularly planned retirements, hiring freezes and normal turnover has contributed to a significant decrease in the EPA's overall employee count. Although a considerable amount of knowledge and experience in a variety of occupations was lost, strategic hiring aimed at creating the optimal workforce was initiated and continues to date. As outlined in this Workforce Plan, the EPA is moving toward more strategic actions to ultimately result in a workforce with the skills needed to effectively achieve the agency's goals and priorities.

In reviewing how to remix the agency's skill set, another factor is attrition. Currently, the agency's overall attrition rate is 5 percent.

Figure 4.9 illustrates EPA's past attrition percentages.

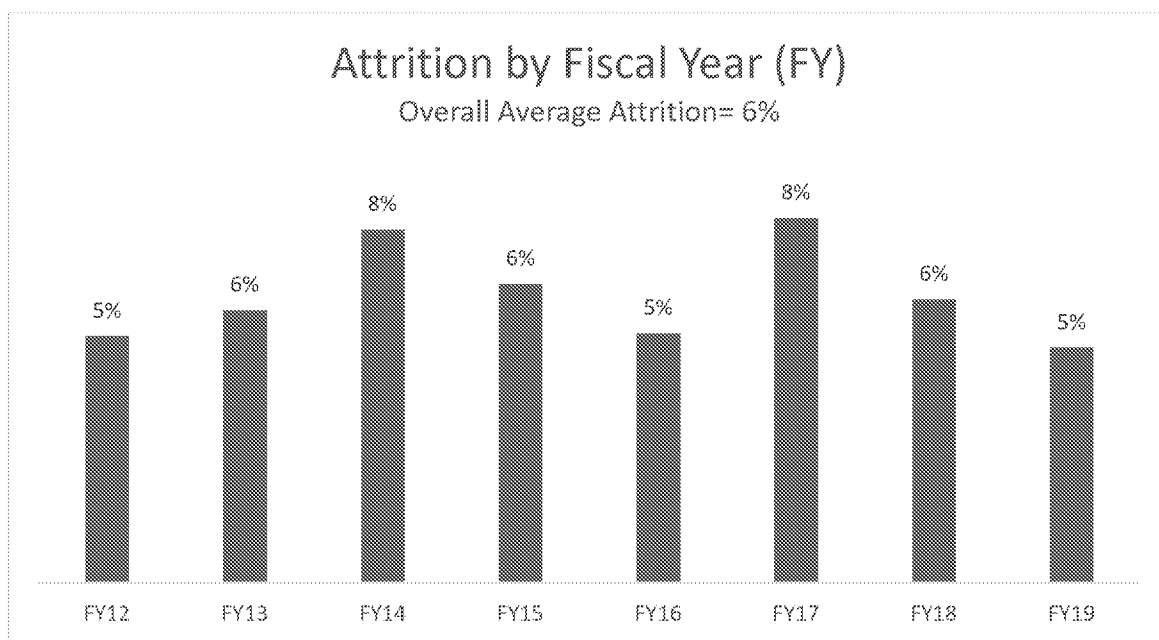


Figure 4.9: Attrition by Fiscal Year

The graph in Figure 4.10, below, shows the EPA's attrition by age group and fiscal year. As a reminder, the VERA/VSIP departures impacted calendar years, 2014, 2015 and 2017.

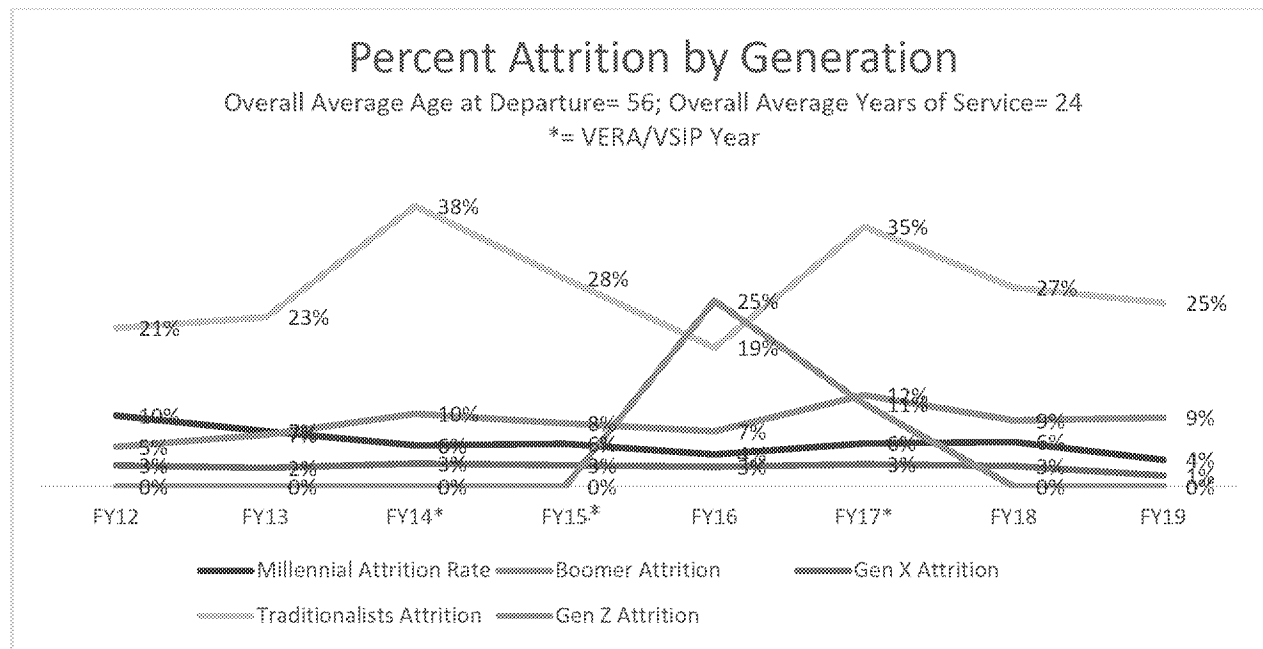


Figure 4.10: Percent Attrition by Generation

Of the employees who left the agency in 2019, the top three reasons for departure were retirement (69 percent), left federal service entirely (17 percent) and transferred to another federal agency (10 percent). The trends in Figure 4.10 are to be expected, as Traditionalists typically have the highest rate of retirement, especially in years when VERA/VSIP is offered. All other generational cohorts have remained relatively steady. It is important to note, Figure 4.10 shows a sizeable spike of attrition among Generation Z in FY16. This spike appears quite large because the EPA has a small number of employees in that age cohort, resulting in each employee who leaves the agency having a large impact on the attrition percentage.

4.3 Organizational Culture

EPA strives to be an employer of choice and recognizes its people are the key to accomplishing this goal. An agency's people define its character and its capacity to perform. Thus, as the EPA continues to develop and invest in its people, the significance of employee contributions increases; as does the performance capacity of the organization, its ability to achieve its mission and strategic goals, and therefore its value to the public and other stakeholders.

Components of being an employer of choice include making sure all employees are assigned to important, value-added work; recruited in such a way as to provide a rich and diverse mix of skills and backgrounds; developed to build on their strengths matched to the critical work that needs to get accomplished; provided a supportive environment to help them perform at their highest levels and encourages them to stay; and encouraged to demonstrate behaviors and working styles promoting mission accomplishment, high ethical standards and employee engagement. Implementing employee engagement best practices using data-driven, research-based approaches is one of the overall objectives of EPA's workforce planning efforts.

Research shows organizational culture can have a significant impact on an agency's ability to be an employer of choice. The EPA participates in the Federal Employee Viewpoint Survey (EVS), administered by OPM, to fulfill its annual employee survey requirements. EVS measures federal employees' perceptions of broad topic areas related to organizational culture and the employee's work experience.

Within EVS is an index to measure employee engagement, which OPM defines as "an employee's sense of purpose that is evident in their display of dedication, persistence and effort in their work or overall attachment to their organization and its mission." OPM's index is labeled the Employee Engagement Index (EEI). It is not uncommon for employee engagement to be confused with employee satisfaction. While these two vital workplace concepts share similarities and can influence each other, it is important to keep their definitions distinct. Employees can be satisfied without being engaged. While a satisfied workforce has its benefits, an engaged workforce is linked to increased productivity; and therefore, employers should invest in cultivating engagement.

During the last five years, the EPA's EEI has varied by at most 4 percent from year to year, as shown in Figure 4.11.

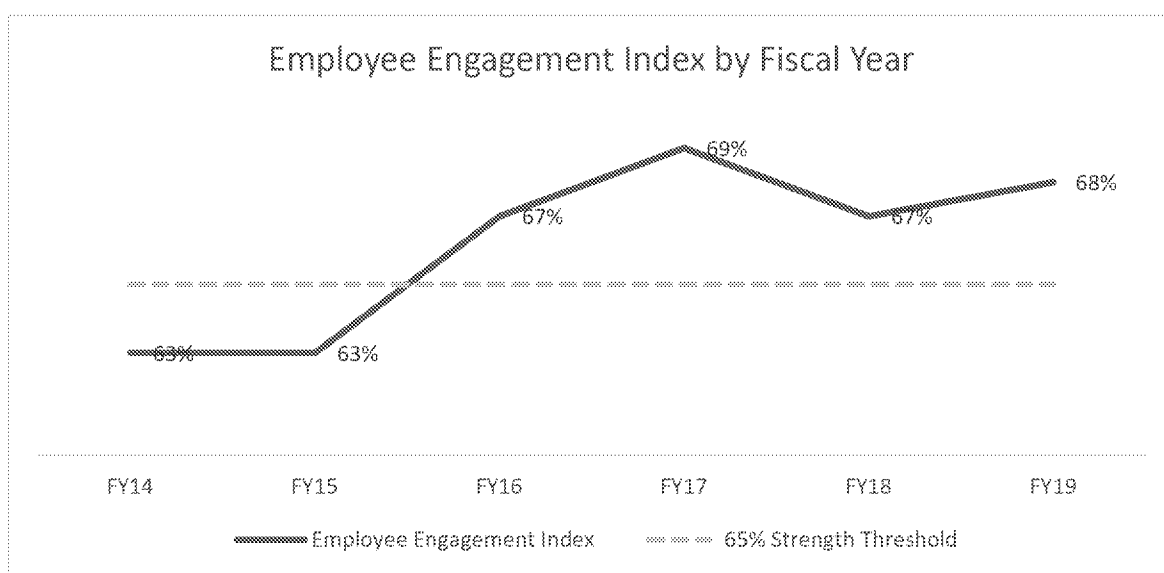


Figure 4.11: EPA's Employee Engagement Index Scores

Research demonstrates a relationship between organizational performance and employee engagement, a relationship supported by analysis of EVS results along with retention and engagement data¹. It is not hard to connect the direct (onboarding, training) as well as indirect (technical and organizational knowledge) losses resulting from low engagement. For this reason, the EPA considers employee engagement throughout its workforce planning process. For example, the feedback from

¹ <https://www.opm.gov/fevs/reports/special-reports/summary-understanding-and-using-engagement-drivers-2016.pdf>

new employees during their first year with the agency is used to make changes to the onboarding experience.

The agency strives to maintain its reputation as an employer of choice, i.e., an organization with the ability to consistently attract and retain high-performing employees. Enhancing employee engagement is essential to achieving this goal and the EPA is concentrating its efforts on the following themes to ensure employees feel they and their contributions are valued:

Employee Recognition: acknowledging individual or team behavior, effort, and accomplishments in supporting organization goals and values;

Work/Life/Wellness: helping employees successfully manage work and personal commitments;

Team Building: enabling groups of employees to work together effectively as a collective;

Professional Development: improving and enhancing employee competencies by giving access and opportunities for training and education;

Communication: delivering and receiving direct, honest and open information; and

Employee Feedback Networks: establishing and promoting mechanisms for staff to provide feedback and comments to improve the workplace.

Additional information on actions taken by EPA to enhance employee engagement can be found in the Appendix.

4.4 Workforce Challenges

The EPA faces potential challenges to promoting effective and efficient internal operations. As previously mentioned, through FY19, the agency's total workforce continued to shrink as attrition outpaced hires. Another challenge is the ability to attract and retain staff skilled in human resources, Information Technology/Information Management, cybersecurity and acquisition management, as well as scientific and technical expertise needed for improving agency operations. For example, cybersecurity has been deemed a governmentwide critical skill gap. As this functional area expands across government and the private sector, the competition for top talent means the EPA can expect greater difficulties in attracting and retaining individuals skilled in cybersecurity areas. In addition, expanded capacity is needed across the agency in practical knowledge of cybersecurity issues to protect business owner information and data and to stay abreast of potential threats. In a similar fashion, cloud computing is becoming a much-needed skill. As the agency moves away from data centers and expands outsourcing, data centers will be replaced by cloud computing and storage options. This will require increased vendor relationship management skills among IT staff.

There is also great external competition in the federal sector for qualified acquisition and information technology specialists. A positive education requirement makes it difficult to engage staff in other occupations to reskill through on-the-job training for filling vacant acquisition and IT positions. This is an area where targeted external hiring may be necessary, especially for entry-level positions where

career ladders could be used to attract and retain highly qualified candidates. Another considered solution would require analyzing existing acquisition positions to separate pure acquisitions work requiring a degree from other work. This could potentially help the agency redeploy existing agency staff while also making it easier to attain and retain acquisition talent.

In 2018, the EPA surveyed its program offices and regions to obtain feedback on their most pressing workforce issues. When asked what the workforce needed to advance strategic priorities, the answers coalesced around four areas:

1. Increase the use of opportunities such as details and phased retirement to help maintain institutional knowledge and close skills gaps;
2. Encourage continuous employee development through coaching, mentoring and leadership training;
3. Increase competency in project management and data analytics; and
4. Standardize business processes and use of collaborative tools.

When asked if the agency has the right people, with the right skills, in the right places and, if not, what could be done, the summary answers were:

1. There is an opportunity to better align skills with strategic priorities;
2. Create greater organizational flexibility to shift talent where needed, including reassigning or retraining employees to take on new functions; and
3. Better match employee's duties to their skillsets.

The action plans being developed as a result of this Plan will contain strategies and processes to continue to address these concerns.

4.5 Synopsis of Current Workforce Analysis

The information presented in previous sections of this Plan highlights the EPA's workforce as highly educated and is primarily focused on positions in the science and engineering fields. Agency knowledge is at risk. During the most recent five fiscal years, approximately 22 percent of the EPA's staff was eligible for retirement (Figure 4.12).

		FY15	FY16	FY17	FY18	FY19	Average
Retirement Eligible	#	3,088	3,158	3,277	3,282	3,398	3,240
	%	21.0%	21.4%	21.7%	24.1%	25.1%	22.7%
Actual Retirements	#	644	500	789	514	479	585
	%	4.3%	3.4%	5.5%	3.8%	3.5%	4.1%

Figure 4.12: Retirement Eligible by Fiscal Year

Currently, on average, 4.1 percent of employees retire each year. The agency must prepare for the possibility of more than one-fifth to one-quarter of its workforce retiring at any given moment. Mitigating the effects of retirement is especially needed for the EPA's MCOs because these positions are vital to the agency's ability to achieve its strategic goals. Sudden or unplanned increases in retirements and other attrition can hamper efforts to retain and transfer institutional knowledge, which may result in decreased organizational effectiveness and efficiency.

Across the EPA, senior-level leaders have made it a priority for the agency to develop the higher-level or different skills needed to move employees into other positions and perform other functions, as needed to achieve strategic goals. Enhancing the agency's ability to retain institutional knowledge and executing succession management are two other workforce issues at the top of mind for senior leaders.

5. Future Workforce Analysis: Looking Ahead 3 – 5 Years

5.1 Workforce Capability Needs

The EPA has 11 MCOs core to the agency's ability to maintain capabilities to fulfill its mission. Of these 11, six are governmentwide occupations and five are specific to the EPA. The following paragraphs provide detailed descriptions of each MCO along with a summary of the agency's current employee population and projected job growth for each occupational series. Detailed information on the numbers of each agency-specific MCO by Program Office/Region can be found in the Appendix.

5.2 Governmentwide MCOs

Economists (0110): At the EPA, economists apply professional knowledge in the performance of duties to include research into economic phenomena, analysis of economic data including cost benefit analyses, and the preparation of interpretive reports; advice and consultation on economic matters to agency officials and private organizations or citizens; and the performance of other professional work in economics including supervision and the direction of economists engaged in various EPA economics programs. The agency has 137 employees in this series. The three Offices/Regions employing the most economists are the Office of Air and Radiation (OAR), which has 28; the Office of the Administrator (AO), with 24, and the Office of Chemical Safety and Pollution Prevention (OCSPP), which has 19. The average age of all economists across the agency is 46 years and the average length of time spent at EPA is 14yrs.

Human Resources Specialists (0201): Human Resources Specialists support the agency's mission by developing and implementing policy and programs, providing guidance, and leading efforts to attract, develop and retain high performing employees. The EPA is the Nation's environmental protection agency and its most important resource is its people. The role of the HR Specialist is to ensure the agency has skilled, dedicated and engaged employees to accomplish strategic goals. GAO and the EPA Enterprise Risk Work Group have identified 201s as a high-risk occupation. The agency has just under 200 employees in this series with most residing in Office of Mission Support (OMS) with 118, and

Regions 3 and 5 with nine each. The average age of the EPA HR Specialists is 47 years and they spend an average of 11 years at the agency.

Auditors (0511): Auditors in the EPA conduct, report on and track the resolution of financial and performance audits of organizations, programs and functions within the agency. In financial audits, financial statements and related activities are examined. During performance audits, auditors review economic, efficiency and programmatic issues. They also monitor expenditures made under the EPA contracts, grants and other agreements. There are 88 auditors employed by the agency, with all but seven located in the Office of the Inspector General (OIG). The average age of the EPA's auditors is 51 years; their average length of service is 19 years.

Contracting Specialists (1102): The EPA acquisition workforce is responsible for procuring the items necessary for the agency to safely perform its duties and responsibilities efficiently and effectively. Contract Specialists play an integral role in accomplishing the high-performance goals identified in the agency budget and performance plans. The EPA Enterprise Risk Work Group identified 1102s as a high-risk occupation due to the greater reliance on contract support considering the EPA's decreasing number of full-time-equivalents (FTEs) and competition for talent across Federal agencies. OMS employs 166 of the agency's 249 contracting specialists, followed by Region 5 with 17, and Region 7 with 12. The average age of this occupational series is 47 years and the average tenure is 11 years.

Information Technology Management (2210, including those IT positions in cybersecurity): The EPA's Information Technology (IT) workforce facilitates the timely, cost effective delivery of high-quality information by making agency data and services readily available to citizens via the Internet, and by improving and maintaining electronic communication across the EPA and among internal stakeholders. The IT workforce manages and oversees critical IT projects to meet cost, schedule and performance goals, ensuring protection of the EPA information systems including classified or sensitive-but-unclassified information. It also provides a secure, reliable and highly available IT infrastructure enabling information sharing and fulfilling program needs throughout the agency. With the increased focus on computer security, the 566 staff in the 2210 series are vital to safeguarding the EPA information. The top three Offices/Regions employing this MCO are OMS, which includes the agency's Chief Information Officer and 203 staff, Office of Chief Financial Officer with 53 and Office of Air and Radiation with 34. The average age of EPA IT staff is 51 years and they remain with the agency 16 years on average.

Cybersecurity (all occupations involved in cybersecurity, including 2210): Based on OPM's collaboration with the National Security Council Sub-Policy Coordination Committee on cybersecurity education and workforce issues, the following categories of cybersecurity work were identified as critical:

- *IT Infrastructure, Operations, Maintenance, Computer Network Defense, and Information Assurance:* Personnel who have significant responsibilities for designing, developing, operating, or maintaining the security of Federal IT infrastructures, systems, applications and networks. Also includes individuals who have responsibility for maintaining the confidentiality, integrity and availability of the information contained in and transmitted from those systems and

networks.

- *Domestic Law Enforcement and Counterintelligence:* Personnel who analyze cyber events and environments to investigate potential threats and individuals who participate in law enforcement, counterintelligence and other types of investigatory activities involving IT systems, networks, or digital information/evidence.

As stated in OPM's 2018 Interpretive Guidance for Cybersecurity Positions, there are 28 occupational series responsible for one or more aspects of cybersecurity work. Within the EPA, the top three Offices/Regions with this MCO are OMS with 234, Region 5 with 146, and OCSPP with 73. The average age of the EPA's cybersecurity workforce is 51 years.

5.3 Agency-Specific MCOs

Biologists/Natural Resources Management (0401): At the EPA, biologists perform various scientific duties involving life processes and transitions, problems of living matter as related to human health issues and preserving and repairing the natural environment. The work may involve research and development, regulatory activities, and testing and analysis of laboratory samples. Research and development often involve extending the body of scientific knowledge pertaining to humans, animals, or plants. The goal of regulatory activities is to protect public health and safety, and laboratory work may involve testing samples of food products, drugs, air, or water for purity, potency and safety. The average age of agency biologists is 46 years and they average 14 years of service. Seventeen of twenty-two program offices and regions employ the EPA's 1,123 Biologists, with the most working in the ORD, OCSPP, and Region 4.

The U.S. Bureau of Labor Statistics (BLS, www.bls.gov) projects a slightly faster growth rate for biochemists and biophysicists compared to all other biological scientist careers during the 2018-2028 decade. During this time period, employment opportunities for these professionals are expected to increase 6 percent, due in part to demand for pharmaceutical developments to assist the aging baby-boomer community. While competition in the field is intense, those with an advanced understanding of biochemistry and how it interacts with other specializations are expected to have the highest job prospects.² This projection might prove to be a key factor in the EPA workforce planning efforts if its biologists leave the agency at a higher rate than would otherwise be expected due to increasing opportunities in the private industry and recruiting new biologists results in competition for top talent.

Environmental Engineers (0819): Incumbents who are classified as environmental engineers advise and perform program work relating to environmental protection programs, e.g., programs to protect or improve environmental quality, control pollution, remedy environmental damage, or ensure compliance with environmental laws and regulations. These positions require specialized knowledge of the principles and methods of administering environmental protection programs and the laws and regulations related to environmental protection activities. All but four of the EPA's program offices and regions utilize a total of 1,576 environmental engineers, with Region 4, Region 2, and Region 5 having

² https://study.com/articles/Biological_Scientist_Job_Description_Salary_and_Outlook.html

approximately 36 percent of the agency's total. On average, the EPA's environmental engineers are 50 years of age and work for the agency 20 years.

Employment of environmental engineers is projected to grow 5 percent from 2018 to 2028. State and local government concerns about water are resulting in an effort to increase the efficiency of water use. This is a shift in focus from wastewater treatment, for which this occupation is traditionally known. Most of the projected employment growth for environmental engineers is in professional, scientific and technical services, as governments at the state and local levels draw on industry expertise to help address water efficiency concerns. Federal government requirements to clean up contaminated sites are expected to help sustain demand for engineer services. In addition, wastewater treatment is becoming a larger concern in areas of the country where drilling for shale gas requires the use and disposal of massive volumes of water. Environmental engineers are expected to help utility companies and water treatment plants comply with federal or state environmental regulations, such as regulations regarding emissions from coal-fired power plants. Opportunities for environmental engineers should be favorable due to the need to replace retiring workers,³ presenting similar retention and recruitment issues as outlined for biologists.

Mechanical Engineers (0830): Within the agency, mechanical engineers are responsible for managing and performing professional engineering and scientific work involving the design, development, commission, manufacture, operation, maintenance, and disposal of mechanical devices and systems and their equipment or components; and concerning the principles of motion, energy, force and material properties to ensure mechanical devices and systems and their equipment or components function safely, reliably, efficiently and economically. Five of the EPA's program offices and regions have mechanical engineers. There is a total of 74 within the agency, with 81 percent of them residing in OAR. On average, mechanical engineers across the agency are 53 years of age and have 19 years of tenure.

Employment of mechanical engineers is projected to grow 4 percent from 2018 to 2028. Mechanical engineers can work in many industries and on many types of projects. As a result, their growth rate will differ by the industries employing them. For instance, mechanical engineers are projected to experience faster than average growth in engineering services as companies continue to require them for contract work. Mechanical engineers will also remain involved in various manufacturing industries, particularly in automotive manufacturing. These engineers will play key roles in improving the range and performance of hybrid and electric cars. However, employment declines in some manufacturing industries will temper overall employment growth of the job series.

Job prospects for mechanical engineers will be best for those with training in the latest software tools, particularly for computational design and simulation. Such tools allow engineers and designers to take a project from the conceptual phase directly to a finished product, eliminating the need for prototypes. Along those lines, mechanical engineering students who can learn to create virtual simulations before proceeding to the design, build and test stages might find themselves in high demand in the private sector because these skills allow firms to reduce product development cycles. Engineers who have

³ <https://www.bls.gov/ooh/architecture-and-engineering/environmental-engineers.htm#tab-6>

experience or training in three-dimensional printing are also predicted to have better-than-average job prospects.⁴

Physical Scientists (1301): Positions in the occupational series include those involving professional work in the physical sciences and might also include work in a combination of physical science fields (e.g., physics, geology) with no one specialization predominant. Physical scientists can be found in all but three of the agency's program offices and regions, with ORD, Region 5, and Region 2 having 32 percent of the 2,055 employed at the EPA. On average, the agency's physical scientists are 50 years old with 18 years of service.

The job and economic outlook for physical scientists varies depending on the specific area of science. For example, the U.S. Bureau of Labor Statistics reports environmental science job opportunities are expected to grow at a rate of 11 percent between 2016 and 2028; chemists will likely see a rate of growth of about 6 percent and materials scientists about 7 percent, from 2016 through 2028.⁵

Chemists (1320): Agency chemists investigate, analyze and interpret the composition, molecular structure, and properties of substances, the transformations they undergo, and the amounts of matter and energy included in these transformations. This work includes the investigation, analysis, and interpretation of the composition, physical and chemical properties, molecular structure and chemical reactions of substances; the prediction of transformations they undergo; and the amount of matter and energy included in the transformations. Seventeen of the EPA's twenty-two program offices and regions staff the agency's 384 chemists, with ORD, OCSPP, and Region 4 accounting for almost 50 percent of the total number. The average age of the EPA's chemists is 52 years and they have 17 years of service on average.

Overall employment of chemists and materials scientists is projected to grow 4 percent from 2018 to 2028. In pharmaceutical and medicine manufacturing, chemists will be needed to develop nanotechnology for medicinal uses. And in chemical manufacturing, employers will call upon chemists' knowledge of green chemistry to improve environmental safety in the workplace and community.

Environmental research will offer new opportunities for chemists and materials scientists. For example, chemical manufacturing industries will continue to develop technologies and processes to reduce pollution; materials scientists may be tasked with finding ways to remanufacture recycled materials, especially plastics; and chemists will continue to be needed to monitor pollution levels at manufacturing facilities and ensure compliance with local, state and federal environmental regulations.

In addition to job openings resulting from employment growth, some jobs will result from the need to replace chemists and materials scientists who retire or otherwise leave the field. Chemists and materials scientists with advanced degrees, particularly those with PhDs and work experience, are expected to have better opportunities than those without an advanced degree. Chemists who can

⁴ <https://www.bls.gov/ooh/architecture-and-engineering/mechanical-engineers.htm#tab-6>

⁵ https://study.com/articles/Physical_Scientist_Job_Description_and_Information_About_Starting_a_Career_as_a_Physical_Scientist.html

practice green chemistry may experience very favorable job prospects because this knowledge can be valuable in reducing employer chemical safety liability by minimizing the creation of toxins and waste.⁶

In summary, of all its MCOs, the EPA biologists are the youngest with an average age of 46. Mechanical engineers are the oldest (average age of 53), physical scientists have the highest projected job growth at 11 percent, and chemists and mechanical engineers are tied for the lowest projected job growth (4 percent, varying by subfield). Considering the recent pandemic, it is likely the EPA MCOs will be in even greater demand across industries and state and local governments. The EPA is utilizing this information to help develop and sustain a comprehensive plan to attract, develop and retain the institutional knowledge of its MCOs at greatest risk of turnover – either due to retirement or other attrition. This Workforce Plan is a key piece of the effort and will provide essential data regarding employee competency gaps and ways to overcome those gaps once implemented.

5.4 MCO Diversity Summary

Among the EPA's agency-specific MCOs, the largest percentage of women are in the Biologists/Natural Resources Management occupational series (0401), where they slightly outnumber men (52 percent vs 48 percent). The largest percentage of men (89 percent) are in the field of Mechanical Engineering (0819). Overall, employees in agency-specific MCOs are 74 percent White. Of the 26 percent who self-identify as minorities, Asians make up the largest minority group with 9 percent, closely followed by African Americans with 8 percent and Hispanics with 7 percent.

Ethnicity by Percentage of Total (rounded up to the nearest integer)	Biology/General Natural Resources Management (0401) (%)		Environmental Engineering (0819) (%)		Mechanical Engineering (0830) (%)		General Physical Science (1301) (%)		Chemistry (1320) (%)		Total Average (%)
	Female	Male	Female	Male	Female	Male	Female	Male	Female	Male	
American Indian or Alaska Native	1	0	0	1	0	0	0	1	0	0	1
Asian	4	3	5	7	1	14	4	3	4	7	9
Black or African American	5	3	5	5	1	1	4	3	4	4	8
Hispanic or Latino	3	2	4	6	3	5	3	4	3	2	7
Native Hawaiian or Other Pacific Islander	0	0	0	0	0	0	0	0	0	0	0
None Specified	0	0	0	0	0	0	0	0	0	0	0
Two or More Races	0	0	0	0	0	0	0	0	0	0	0
White	39	40	24	42	5	69	32	46	26	48	74
Individual Totals (%)	52	48	39	61	11	89	43	57	38	62	
Overall Totals (%)	100		100		100		100		100		100

⁶ <https://www.bls.gov/ooh/life-physical-and-social-science/chemists-and-materials-scientists.htm#tab-6>

Figure 0.1: Agency-specific MCO Diversity Data (As of May 20, 2019)

In terms of employees who self-identify as having a disability, the greatest percentage are Chemists (9 percent) and the smallest percentage (3 percent) are Mechanical Engineers.

Disability by % of Totals (rounded to the nearest integer)	Biology/General Natural Resources Management (0401) (%)		Environmental Engineering (0819) (%)		Mechanical Engineering (0830) (%)		General Physical Science (1301) (%)		Chemistry (1320) (%)		Total Average (%)
	Female	Male	Female	Male	Female	Male	Female	Male	Female	Male	
Do Not Wish to Identify	3	2	1	1	0	1	1	1	2	3	3
Disability	4	3	2	4	0	3	2	3	4	5	6
No Disability	45	43	36	56	11	85	39	52	32	54	91
Individual Totals (%)	52	48	39	61	11	89	43	57	38	62	
Overall Totals (%)	100		100		100		100		100		100

Figure 5.2: Agency-specific MCO Disability Data (As of May 20, 2019)

Figure 5.1 and Figure 5.2 provide more detailed information on the diversity of the EPA's MCOs. Additional information can be found in the appendix at the end of this document. It is the EPA's goal to mirror the American workforce and it is actively partnering with its Human Resources Council, the body designated to advise the EPA Administrator and Deputy Administrator on human resource issues impacting the agency, along with the DIAC. The OMS/OHR diversity group works to attract individuals of different backgrounds and experiences to bring a diversity of thought to agency work. In addition to accomplishments mentioned earlier in this Plan, actions and accomplishments in the area of diversity and inclusion include continuing to retain resumes for Schedule A applicants and disabled veterans in an automated and searchable database to give hiring managers access to qualified applicants in a timely and efficient manner; examining data from exit surveys to address challenges retaining diverse populations; utilizing multiple reports, including analysis of Sexual Orientation and Gender Identify (SOGI) data and applicant flow data to identify actions to address potential barriers to career development and advancement.

5.5 Future Structure

The EPA anticipates its overall organizational structure will continue in its current form. In 2019, the agency implemented a standard organizational structure for the EPA regional offices to more closely align them with the EPA headquarters structure. This realignment enables increased coordination

between the EPA National Programs and their regional counterparts to meet strategic goals and objectives, improve the consistent implementation of the EPA regulations and policies, and allow better synergy of resource allocation to more effectively carry out the agency mission.

5.6 Workforce Growth or Reduction Requirements

The EPA's FY 2020 Annual Performance Plan and Budget of \$6.068 billion represents a \$2.76 billion, or 31 percent reduction from the agency's FY 2019 Annualized Continuing Resolution level. This resource level, including the agency's requested 12,414.6 full-time employee count, will enable the EPA to support its highest priorities and fulfill its critical mission for the American people.

A major component of the FY 2020 Budget request is funding for America's infrastructure, including drinking water and clean water infrastructure, as well as for Brownfields and Superfund projects making safe land that might contain hazardous substances, pollutants, or contaminants. Critical new grant programs were requested in FY 2020 to ensure the environmental safety of school children and for work maintaining essential water infrastructure across the country. The EPA budget includes \$83 million and approximately 20 additional full-time employees for new grant programs to implement the recently enacted America's Water Infrastructure Act of 2018 designed to improve drinking water and water quality and deepen related infrastructure investments. Act provisions are the most far-reaching changes to the Safe Drinking Water Act since the 1996 Amendments, with over 30 mandated programs including the Drinking Water State Revolving Fund and Community Water System Risk and Resilience Assessments. The budget also proposed a new \$50 million Healthy Schools Grant Program to target resources towards identifying, assessing and resolving environmental hazards in our Nation's schools. Ensuring the most vulnerable among us, especially children, are protected is a top priority of the agency. This new program will have implications for the agency's Workforce Plan, as additional staffing and retraining of current staff may be required to fulfill its goals.

Acknowledging a shared responsibility for environmental protection, funds are provided to the EPA state and tribal partners through categorical grant programs. The EPA recognizes states require flexibility in addressing their unique environmental priorities and the budget includes funding for multipurpose grants enabling states to implement core mission work to meet their specific needs. The budget also provides essential resources to equip the EPA in delivering vital emergency response services following environmental disasters requiring multiple states to work together.

The agency is focused on providing quality services to Americans and its partnering entities, prioritizing its services in three primary areas:

1. States and local governments, including tribes;
2. Programs, such as permitting and enforcement actions; and
3. Risk communication.

Risk communication goes to the heart of the EPA's mission as the agency must speak with one voice when sharing the environmental and health risks to Americans. The EPA efforts are guided by scientific

data, tools and research alerting the American public to emerging issues and informing decisions on managing materials and addressing contaminated properties.

The FY 2020 budget highlights actions enabling the EPA to reduce costs and effectively utilize its resources. The agency works across all its programs to unite varied interests and stakeholders to focus attention and leverage federal, state, local and non-governmental resources in a coordinated effort to address the Nation's greatest environmental and human health challenges. Doing so requires specific and targeted workforce planning actions and outcomes, which are heavily influenced by the agency's management challenges and workforce proficiency requirements.

5.7 Management Challenges

In 2015, the Office of the U.S. Inspector General identified 28 themes found to create management challenges across all federal agencies. OIG further simplified the 28 themes into six central ones. The Government Accountability Office uses these themes to identify human capital High Risk Areas or programs struggling or susceptible to fraud, waste, abuse or mismanagement.

The first is *Training/Development*. Agencies must provide effective and efficient training programs for acclimating new personnel. If an agency fails to properly train its employees, it will ultimately endanger overall agency performance. Within the federal government, 88 percent of agencies struggle with training and development, most affecting acquisition, IT, federal revenue and cost control, and safety. The EPA addresses this challenge by maintaining a robust New Employee Orientation process updated to include a module on employee engagement and incorporating information on the importance of knowledge sharing and knowledge transfer as a way to enhance employee performance. Also, in FY19, the agency deployed FedTalent as the learning management system for all employees and contractors. It stores training courses and employee training records while also delivering analytic data to support agency goals. The implementation of FedTalent ensures continued alignment with the EPA strategic initiatives for technology integration and OPM training and development mandates. The system integrates learning management functions into one platform and centralizes classroom and e-learning management (e.g., reports, courses, registrations, course completions), reducing operational costs and saving time.

The second GAO management challenge theme is *Staffing Levels*. Gaps in staffing levels can cause underperformance or put agency performance at risk. To mitigate this, agencies must identify staffing needs and fill vacant positions quickly and efficiently, reducing burden on current staff. This theme is similar to the third category or theme of challenges - Hiring and Recruitment. With 58 percent of federal agencies finding it difficult to hire and recruit new employees, many are under-staffed, increasing pressure on incoming employees to already have both high levels of skills and knowledge upon entry. To alleviate this challenge, the EPA's Shared Services Centers worked diligently to fill vacant positions in a timely and efficient manner. As a testament to this, in FY19, 25 percent more hiring actions were completed compared to FY18 while maintaining an agencywide year-to-date time-to-hire average of 94 days, more than four days faster than the government-wide average of 98.3 days. The SSCs have also taken a consultative approach when working with hiring managers to more adequately forecast staffing needs based on attrition and retirement projections, holding targeted job fairs and internal job application workshops to build qualified candidate pools for critical positions.

The fourth theme is *Skills*, which pertains to the skill level of employees. In 2015, GAO reported 63 percent of agencies experienced gaps in employee skill levels. Skills are typically acquired one of three ways: hiring for needed skill sets, training current employees or contracting for short-term needs while inhouse capacity is built. In addition to the actions outlined in the above paragraphs, the EPA carefully evaluates the results of both its Supervisory Training Needs Assessment and its Employee Training Needs Assessment and revises its employee development opportunities accordingly. In FY19, led by OMS/OHR, the EPA achieved the following:

- Recorded 274,260 online learning courses completed by employees and contractors, including federally mandated and compliance-based courses;
- Consulted with agency partners to oversee the development of 42 new e-learning courses;
- Graduated 97 employees from the Leadership for a Democratic Society Program;
- Graduated 521 agency supervisors from the Successful Leaders Program, a recognized best practice across the government; and
- Graduated 375 agency employees from the Stepping Up to Supervision Program.

The agency continuously evaluates training and development offerings and additional refinements will be made once the results of planned competency assessments are analyzed in FY20 and FY21.

The fifth GAO management challenge theme is *Data and Analysis*, which includes collecting and analyzing data, specifically in the areas of human capital management, acquisitions, and information systems. According to the report, problems are commonly found when conducting workforce analysis and collecting sufficient and accurate human capital data. To help mitigate this challenge, the agency heavily invested the resources needed to build an online competency assessment tool to aid in assessing skills gaps at the enterprise and subcomponent level. The tool has been piloted and is scheduled to be launched in FY20; it was cited as a Noble Practice in OPM's Fiscal Year 2019 Human Capital Reviews Report.

Finally, the sixth theme for management challenges is *Planning*. Nearly a third of all federal agencies struggle with planning practices related to managing the workforce. Specifically, the GAO report calls on agencies to expand workforce and human capital planning and improve the development and execution of existing plans. Overall, if an agency fails to fulfill the requirements of the six main themes, it will be considered a High-Risk Area. Since 2018, the EPA has made a conscious effort to expand its staff dedicated to workforce and human capital planning and has better aligned all of its key human capital documents (e.g., Human Capital Operating Plan, Workforce Plan, Strategic Leadership Succession Plan, etc.) with the agency's overall strategic plan. In addition, the EPA CHCO and Deputy CHCO have key roles on the HRC, allowing human capital efforts to be shared with senior leaders across the agency and to be easily communicated to the Regional Human Resources Officers and Program Management Officers, who are responsible for local implementation of human capital initiatives. The Deputy CHCO and OHR leaders also have monthly conference calls with the Regional Human Resources Officers and Program Management Officers (RHRO/PMO) community to relay

updates to and obtain feedback on the status of existing and new human capital processes and procedures.

The EPA has additional challenges. In recent years, turnover in critical senior leadership positions resulted in some shifting of priorities. Budgets also change as priorities shift, creating a challenge for resource allocation. To stay focused on all primary mission areas, the EPA engages in continuous improvement. Under the EPA Lean Management System (ELMS), the Agency improved the hiring process (e.g., applying lessons learned from audits, internal quality control data, etc.), using data from the agency's personnel and payroll system and its application tracking system to assess progress in achieving hiring and retention goals. Also, the agency routinely solicits and communicates best practices and promotes knowledge sharing of data with the organization. This includes activities the EPA uses to work with public and private sector organizations to share best practices, foster innovation and collaborate in the development and implementation of new processes and procedures to improve individual and organizational performance.

In summary, the EPA strives to consistently implement processes to address all six management challenge themes. Fortunately, the agency has robust processes and systems in place or is currently implementing processes for all the GAO themes.

5.8 Retention and Loss Forecasts

Since 2015, the EPA has 1,272 fewer permanent employees due to attrition not replaced through hiring. This represents a loss of 9 percent of our workforce. Fortunately, the agency has made

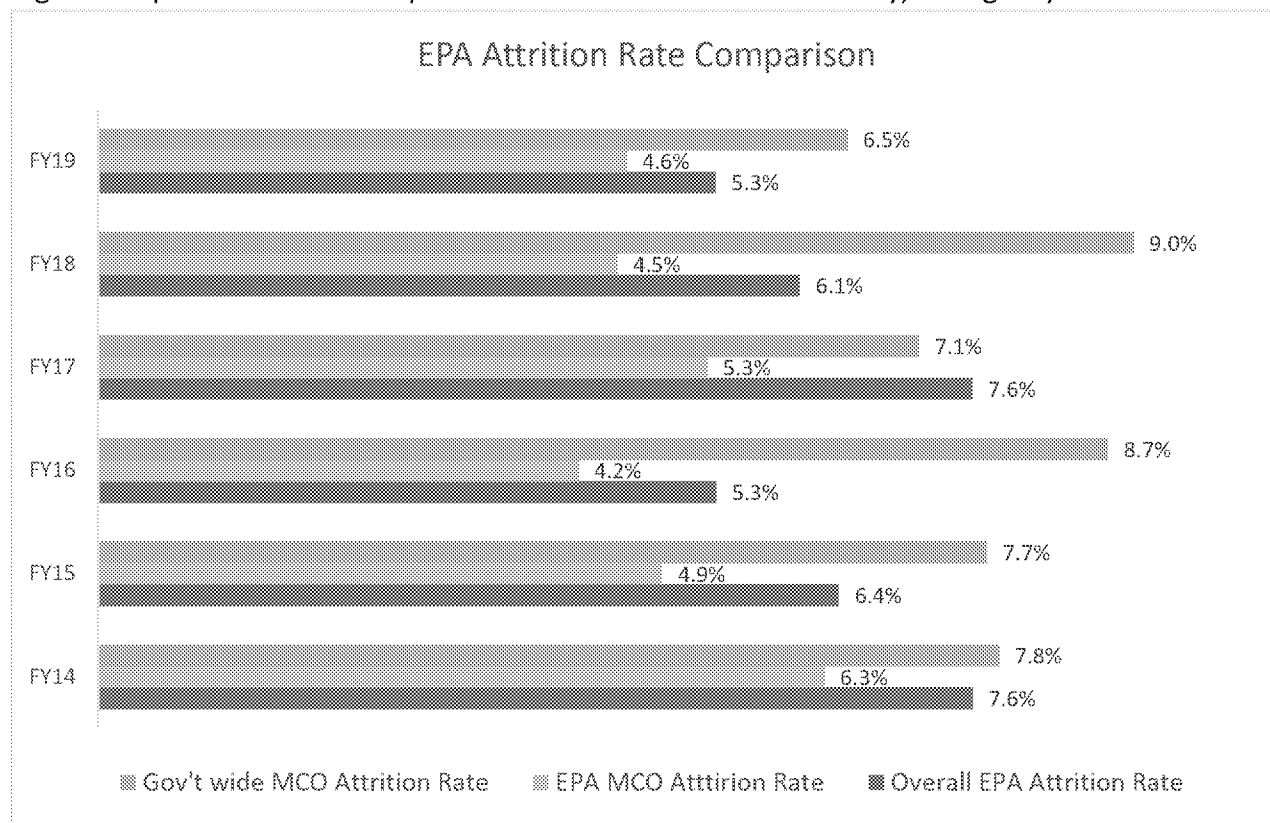


Figure 5.3: Attrition Rate Comparison

tremendous strides in lowering turnover. The average rate of attrition is approximately 6 percent each year, down from 7.6 percent in FY17 (a year VERA/VSIP incentives were offered) to 5.9 percent in FY19 and 2.9% thus far in FY20. Mirroring the EPA's overall attrition rate, attrition among agency-specific MCOs declined from FY17 to FY19 and the rate continues to be lower than the attrition for the EPA governmentwide MCOs (Figure 5.3).

5.9 External Factors Affecting Future Workforce, Labor Market, Technology, and Economy

In the most recent Federal Workforce Priorities Report, OPM identified four major trends affecting the federal workforce at large. The first of these is the evolving role of work impacted by automation, with some experts estimating 5 percent of occupations are at risk of being completely automated and 60 percent of jobs could have over 30 percent of their activities automated. This shift to machine assistance allows for amplified value of expertise and increased work capacity. Though the EPA has not yet provided agencywide guidance on the forecasted impact of automation on most agency functions, in preparation for a semi-automated future, critical adaptive, flexible management systems are in place ready to identify activities prime for automation. Managers will then need to respond to employees' new roles by developing their own soft skillsets. In the next 5-10 years, it is predicted the most needed skills will include the ability to manage a diverse team, relationship building, innovation, teamwork, and facilitation of co-creativity and brainstorming.

As with other Federal agencies, the EPA recognizes the internet and social media are already playing a significant role in the way employers recruit talent, encourage collaboration and manage collective knowledge. As the workforce grows more mobile, it is important for organizations to effectively manage their branding, optimize mobile capabilities and recognize the opportunities social tools afford. In a 2015 OPM study, 37 percent of employees felt they could do their job better if management was more supportive of social media tools. When deployed within an organization, social technologies have proven capable of streamlining communications, adding search capability and enhanced accessibility, while allowing for expedient sharing of knowledge and best practices. Additionally, those allowed to go online for personal reasons were 9 percent more productive than those who did not. While this practice has limits, it challenges previous held workplace beliefs about the divide between personal and professional – the lines continue to blur. The EPA addresses this work flexibility trend using telework, flexible work schedules and remote work tools, such as Microsoft Teams and SharePoint, to facilitate collaboration and knowledge sharing across the agency. A work/life/wellness program manager was recently added to OHR to better coordinate these activities. As mentioned in previous sections, enhancing communication and work/life/wellness balance is essential to maintaining high employee engagement.

The third trend involves incorporating employee health into the workplace. Previously, investment in employee health was an added benefit boasted by contemporary employers; however, in recent years it has shifted towards becoming the expectation. Promoting physical activity at work can look different from one organization to the next but signs to look for include standing desks, employees encouraged to exercise during breaks, subsidized gym memberships or office sports teams. To help promote physical and mental wellness, the EPA offers a robust Employee Assistance Program (EAP), providing staff with a wealth of solutions covering a continuum of care from restoring well-being to accelerating human performance and organizational effectiveness. Other agency programs and activities include

Walk to Wellness and Step It Up Challenge events hosted by the Safety and Sustainability Division within OMS. The Challenge encourages EPA employees to "step up" their fitness and earn points for their location's team, competing against similarly sized locations agencywide. In addition, EPA wellness coordinators organize walking groups which are informal groups of employees who meet on a predetermined day and time to get exercise by taking a walk and *Get Off Your Seat and Take the Stairs* events at various times throughout the year.

Lastly, the report acknowledges the generational shift in the workforce. By 2024, Millennials, those born between 1981-2000, are projected to make up 45% of the U.S. workforce. As this transition comes to fruition, the shift in workplace priorities becomes clearer—flexibility and work/life/wellness balance are proving more important to this generation than to those previously. This is requiring employers to work towards removing flexibility stigma and rethink their rewards systems. There is also a high value placed on inclusive and ethical leadership, with 56% of millennials saying they would never consider working for certain employers due to their values and standards of conduct. This new workforce desires managers who are transparent, dependable, fair, provide continuous performance feedback and encourage the free flow of information unhindered by previous qualifiers like experience or rank. To address the needs of the EPA millennials and employees with similar preferences, the agency's employee engagement team has a member dedicated to involving millennials and Gen Z's (those born after 2000 about to enter the workforce) in workplace improvements. In addition, the OHR hired dedicated performance management specialists to ensure supervisors and managers are properly trained on ways to provide fair and continuous performance feedback to their staff, and the Diversity and Inclusion Advisory Council (DIAC) continues to train managers to recognize unconscious biases and mitigate systemic bias in the workplace, promoting transparency and fairness.

Finally, there is an expectation skill development and maximization will be invested in once 'on-the-job.' Per GAO's 2019 report *Federal Workforce: Key Talent Management Strategies for Agencies to Better Meet Their Missions*, younger "employees are seeking greater developmental opportunities and would prefer longer-term employment where they can continue to build their skills and train. Experts noted that while employees change jobs more often than in the past, this phenomenon can be a result of employers investing less in employee development, which has led to greater turnover." To address this challenge, the agency uses details, rotations and mentoring as mechanisms for promoting career development. To promote and support detail assignments, many program and regional offices use the agency's internal application, TalentHub, for advertising detail openings. Similarly, several regions and program offices develop management expertise and an understanding of the organization through developmental rotations into supervisory positions. To encourage greater participation in these kinds of programs, the EPA will strengthen its integration of rotations, details and mobility assignments into its workforce planning and succession management strategies.

In summary, changing demographics and shifting attitudes towards work necessitates the EPA continue to adopt forward-thinking, agencywide initiatives and keep developing its organizational capacities to manage a diverse workforce seeking purpose, autonomy and career mobility. As the workforce continues to evolve, it is crucial the EPA remains knowledgeable and adaptive to the shifting needs of its staff.

6. Skills Gap Analysis

In its simplest terms, a skill gap or competency gap is the difference between the skills an organization needs and the skills its workforce has. In order to understand competency gaps, there must be an assessment of workforce skills. Competency assessments are one of the many strategic workforce planning activities the EPA is using to determine the current status and future needs of its workforce. The purpose of conducting competency assessments is to determine whether the EPA workforce possesses the knowledge, critical skills and behaviors to successfully accomplish its ongoing and future mission goals and objectives. Competency assessments are used to identify potential skills or competency proficiency gaps or weaknesses. Developmental and recruitment resources can be strategically targeted to minimize any identified gaps, ensuring investment in the talent necessary to support agency mission.

In 2003, the EPA conducted baseline competency assessments on the first of its MCOs. The results of these assessments were used to help each organizational component formulate its own workforce or succession management plan. An enterprise-wide strategy was formulated to provide a framework of steps to develop and maintain human capital and workforce plans. The plan linked key strategic planning principles, mechanisms for staff to report accurate data for monitoring and evaluating progress, and feedback from appropriate stakeholders to determine what additional information about human resource decisions should be presented and how. The plans developed as a result of the 2003 effort proved useful to the organization at that time. Since then, the nature of work at the agency has changed as has the composition of its staff. Prior sections of this plan discuss the overall strategic workforce reshaping efforts VERA/VSIP programs and other initiatives helped implement.

With the understanding of workforce planning being a continuous, iterative process, the EPA will continue to maintain and operate its recently developed workforce planning tools. The MCO Dashboard (to be fully launched in FY 2021), along with the Workforce Demographics Dashboard and Diversity Dashboard (both fully deployed in FY 2018 and FY 2019 respectively), provide data visualizations and easy-to-understand information about the current workforce. These tools are essential for succession planning and management by affording managers a strategic view of workforce retirement eligibility, diversity information, occupational series and grade levels, as well as the ability to access data at lower organizational levels. The dashboards assist the EPA with succession planning by helping anticipate workforce gaps due to anticipated retirements and attrition trends.

During the past two years, the EPA established an innovative tool named the Talent Enterprise Diagnostic . TED provides for the collection of information to track, update and assess the skills of positions throughout the EPA, along with the corresponding skills of incumbents in those positions. To aid with workforce planning efforts, the agency is implementing TED via a phased approach concentrating on its MCOs. In CY20, the TED tool will be used to assess MCO gaps, in particular the 2210 series, to meet the requirements of Federal Information Technology Acquisition Reform Act (FITARA). It is anticipated TED data will be incorporated into succession plans for all 21 first-level agency components, as appropriate, and be used to revise this Workforce Plan.

7. Workforce Action Planning

In its *Workforce Planning Elements of End-to-End Hiring Roadmap*, OPM identified five essential steps or tasks in the workforce planning process. The table in Figure 7.1, below, lists the steps, along with a detailed description and the EPA point of contact for each.

Workforce Planning Tasks	Description	POC
Set Strategic Direction	<ol style="list-style-type: none"> 1. Obtain leadership commitment to include championing at the executive level. 2. Set mission, vision and objectives with emphasis on integrating agency and component level organization perspectives. 3. Identify organizational direction and ensure all supporting plans and documentation link to workforce planning efforts: <ul style="list-style-type: none"> • Identify roles and responsibilities. • Develop Workforce Planning System and Processes. • Identify desired results of workforce planning system. • Set measures for organizational performance. 	<p>The Administrator, CHCO and Deputy CHCO have determined the workforce planning strategy for the agency.</p> <p>Senior leaders will be responsible for setting the strategic workforce direction for each organizational component. Their direction and plans will be aligned with and complement the agencywide direction.</p>
Analyze Workforce Data and Identify Skill Gaps	<ol style="list-style-type: none"> 1. Analyze current state of workforce to answer two basic questions: “Who works for the organization today?” and “What skills exist in the organization’s current workforces, and at what strength and proficiency levels?” 2. Conduct baseline assessment. 3. Analyze future state of the workforce. 4. Conduct workforce competency assessments. 	OHR in partnership with POCs from each first-level organizational component.
Develop Competency Action Plan	<ol style="list-style-type: none"> 1. Develop plan to close competency gaps 2. Develop Human Resources infrastructure and program support to implement the actions 3. Develop communications strategy 	The CHCO and Deputy CHCO will determine all three components at an agencywide level.
Implement	<ol style="list-style-type: none"> 1. Develop an implementation strategy for the workforce plan 2. Communicate the workforce plan (continuous—not a one-time effort) 3. Obtain organizational buy-in 	Senior leaders will be responsible for developing them for each first-level organizational component. Plans will be aligned with and complement the agencywide direction.
Monitor	<ol style="list-style-type: none"> 1. Monitor progress against milestones and measures 2. Adjust plan as needed to address new workforce issues resulting from changes in mission priorities or resourcing posture 	As with the previous steps, the CHCO and Deputy CHCO will be accountable

Workforce Planning Tasks	Description	POC
	3. Assess for continuous improvement purposes	for these three steps at the agencywide level. Senior leaders will be responsible for these steps at their specific first-level organizational component. Their actions will be aligned with and complement the agencywide direction.

Figure 7.1: EPA Workforce Planning Tasks

To implement the Workforce Plan, the EPA will utilize several tools, including those developed in-house (e.g., Workforce Planning Workbook, TED, Succession Management Guide, various workforce demographic dashboards, etc.), those developed by OPM (e.g., Executive Playbook for Workforce Reshaping, OPM Reskilling Toolkit, etc.) and resources developed by others (e.g., October 2018 MITRE Report on Symposium on the Federal Workforce for the 21st Century, etc.).

Of note, when planning for organizational and environmental changes while implementing its workforce plan, the EPA will use the five steps outlined above in Figure 7.1, echoing OPM's *2018 Guidance for Change Management in the Federal Workforce*. The agency has already completed the first step (develop strategic objectives and human capital requirements) and is implementing the second (conduct workforce analysis). The remaining three steps – consider scenarios and decide on path, plan for structural and cultural change, and manage transformation through ongoing human capital strategies and evaluation processes – will be incorporated on an ongoing basis.

8. Execution and Monitoring

As a science-based agency dedicated to excellence in all that it does, an integral part of the EPA's Workforce Plan is continuous monitoring and evaluation. To more efficiently accomplish this, the EPA Lean Management System (ELMS) principles will be utilized. This includes identifying the suppliers, inputs, process, outputs and customers within the plan and remaining mindful of how they work together throughout the outlined processes. Consideration will be given to the multiple types of metrics and how measures can ensure the most strategically focused and efficient results are realized. Utilizing these principles throughout the implementation process will aid in sustainability while allowing for continuous improvement. In addition, this will facilitate the EPA monitoring of both the outcomes of its human capital strategies and how these outcomes help organizational components accomplish their programmatic goals.

As previously stated, the EPA has identified workforce planning, succession management, and employee engagement as three of the agency's top workforce priorities for 2020-2022. To develop the measures, metrics and implementation plan, OHR continues to enlist members of its Human Resources Council, First-Line Supervisors Advisory Group (FLAG) and DIAC to zero in on applicable strategies that would be both effective and efficient for the agency.

The agency's Chief Human Capital Officer and Deputy CHCO have reviewed and champion this Workforce Plan. It will be communicated to the EPA's RHRO/PMO community via webinars, conference calls and training sessions, and to all employees via the EPA's intranet site and other agencywide communications. To fully implement the Plan throughout the agency, OHR will employ a train-the-trainer model for workforce planning, succession management and employee engagement. The agency's Workforce Planning Workbook, Succession Management Guide and Engagement Best Practices Guide will serve as the foundation for the training along with specially designed online modules accessible to the entire agency via FedTalent. The agency's FLAG scheduled refresher training, administrative supervisory updates and periodic targeted emails will remind managers of the guidance, availability and use of human capital flexibilities to attract and retain high-performing employees.

Though key individuals and groups have clearly identified roles in implementing this Plan, every EPA employee has a part to play in agency workforce planning efforts:

- In concert with the CHCO and Deputy CHCO, Presidential appointees champion the Workforce Plan, communicate its importance and relationship to mission priorities, and visibly support human capital initiatives in their own organizations;
- Senior managers cascade communication about human capital matters to their teams and provide resources for implementation of workforce planning initiatives within their own components;
- First line supervisors help employees understand the link between workforce planning and mission priorities, use human capital tools to guide local planning efforts, and identify and raise workforce issues and needs; and
- Employees actively learn about and participate in workforce planning initiatives and raise workforce issues and needs to the appropriate parties.

Many of the workforce challenges confronting the EPA are very similar to those faced by other government and private-sector organizations. Some organizations have found successful ways to address those challenges—others have learned very difficult lessons. In either case, the EPA can learn a great deal from both types of organizations as it develops solutions. In addition, the agency can continue to benefit by forging and maintaining partnerships with other Federal organizations and working together to understand and address common concerns. Actions to accomplish this include, but are not limited to:

- Identifying agency workforce planning initiatives to benefit from benchmarking or partnering relationships and follow up as appropriate;
- Reviewing other organizations' experiences and assessing its own efforts to foster creativity and innovation, in order to learn from these experiences and integrate such findings into agency practices;

- Analyzing and evaluating innovative projects, programs and policies to determine their potential for broader agency use; and
- Using contacts established through interagency groups (e.g., President’s Management Council, CHCO Council, etc.) and with other agencies to learn of proven approaches for implementing workforce planning in a systematic and holistic fashion.

Individual Offices and Regions may choose to develop “local” human capital strategies building on targeted needs, goals, strategies and initiatives specific to their organization. To provide a link to other organization’s workforce planning efforts and to avoid duplication of effort, development of local plans should involve the organization’s HRC representatives and RHROs/PMOs. It will also be important for local workforce plans and related activities to be consistent with the concepts and principles outlined in this Plan. Using a consistent approach makes it possible to develop, evaluate, and report data required to assess agency-level progress in attaining workforce planning goals and satisfy external reporting requirements. More importantly, consistency between national and local workforce planning efforts will help determine whether the EPA is succeeding in becoming the best it can be - making the EPA an employer of choice in the federal government.

While incorporating ELMS principles, the EPA has developed a monitoring and evaluation plan template for its agencywide Workforce Plan and for plans for each first-level organizational component. The template includes information for each task in the workforce planning process, as shown in Figure 8.1, below. Details for the agencywide plan are listed; each organizational component will complete and submit their own plan to OHR and provide annual updates.

Workforce Planning Task	POC(s) and Champions	Measures & Metrics	Milestones	Reporting Mechanism and Frequency
Set Strategic Direction	The Administrator, CHCO and Deputy CHCO	The EPA’s Workforce Plan will be formally issued and adopted, as evidenced by the Plan’s posting on the agency intranet and internet site.	Approvals obtained from EPA’s CHCO and Deputy CHCO	OHR will periodically report status of plan until all approvals are obtained.
Analyze Workforce Data and Identify Skill Gaps EPA will begin with cyber-security positions, one of its MCOs.	OHR’s Workforce Planning Branch, in partnership with POCs from each first-level organizational component	Completion of EPA cyber-security positions assessed via TED	POCs and supervisors will be trained on the workforce planning process and TED. Competency assessments are completed within established timeframes.	OHR’s Workforce Planning Branch will periodically communicate attainment of milestones to the CHCO and Deputy CHCO until completion.

Workforce Planning Task	POC(s) and Champions	Measures & Metrics	Milestones	Reporting Mechanism and Frequency
Develop Competency Action Plan	OHR's Workforce Planning Branch, CHCO and Deputy CHCO, with input from senior leaders	First-level components submit formal action plan	Action plans are completed and compiled within established timeframes	Monthly status reports will be communicated to the CHCO and Deputy CHCO until completion
Implement	CHCO and Deputy CHCO, with input from senior leaders	Reduction in skills gaps as assessed annually via TED	Tasks identified in Skills Gaps Action Plans are executed according to schedule	OHR will request semi-annual implementation updates from all 1 st level components.

Workforce Planning Task	POC(s) and Champions	Measures & Metrics	Milestones	Reporting Mechanism and Frequency
Monitor	CHCO and Deputy CHCO, with input from senior leaders	Year-to-year reduction in competency gaps	Tasks identified in Skills Gaps Action Plans continue to be executed and evaluated according to schedule	OHR will request annual updates from all 1 st level components.

Figure 8.1: EPA's Workforce Planning Execution & Monitoring Plan Template

Continual analysis of the current workforce, in consultation with Office/Regional leadership, regarding current and future skill needs will determine to what degree the agency is able to obtain and retain the skills crucial to successfully perform agency operations without disruption. Competency gap closure strategies could include redeploying current staff on a temporary or permanent basis, developing existing staff, or supplementing the permanent agency workforce with contractors, temporary appointments and reemployed annuitants.

The agency is already well-versed in implementing such actions. For example, the EPA's Talent Hub is an online, one-stop-shop for a range of career development opportunities available across the agency. Recommended by two high level committees—the Human Resource Council and the High Performing Organization team in response to Federal Employee Viewpoint Survey data and other feedback received from employees – the tool simplifies the application process and organizes opportunities into one place. Currently, Talent Hub contains part-time projects, full-time details and temporary promotions, lateral reassignments and Senior Executive Service positions.

The EPA introduced its new Green Intern Program in 2019, a noted best practice by OPM. The one-year development program promotes careers in the agency's MCOs to individuals who have recently graduated from qualifying educational institutions and programs. For FY20, the EPA anticipates graduating 24 interns from the program and will look to recruit for the next cohort in early FY21 for the purpose of creating a pipeline of new employees. The interns will have organized training and rotational assignments and may be converted to career conditional employees at the end of their one-year term.

Other existing actions to help close competency gaps include working with the EPA's National First Line Supervisory Advisory Group (FLAG) to implement recommendations identified in its Leadership Action Plan to address first-line supervisor needs and build a qualified leadership cadre and developing standard recruitment packages to be used across the agency to significantly reduce the time normally needed to post a vacancy announcement.

To further enhance the EPA's ability to close skills gaps, its Recruitment Plan, Succession Management Plan, Training Plan and Workforce Plan will be aligned by the end of FY21 and senior leaders will gauge their success according to the measures and metrics established for each. In addition, OHR and the agency's SSC will continue to closely monitor attrition and retention via various dashboards, including but not limited to the Workforce Demographics Dashboard and the Diversity Dashboard.

Progress on the monitoring and evaluation plan will be communicated, at least semi-annually, by the CHCO or Deputy CHCO to the EPA's Administrator and Deputy Administrator. Results will be used to revise strategic planning efforts, as appropriate, with updates channeled through the CHCO and Deputy CHCO for implementation.

9. Conclusion

As the EPA moves into the future, it is paramount to maintain and develop the agency's critical skills in order to meet its mission. To do this, the EPA must rely on its strongest asset—its employees; they are the key to environmental excellence. As in the past, the EPA's workforce will face challenges over the next several years such as the potential number of retirements, fiscal outlook and competition for talent. Once implemented, this Workforce Plan will give the EPA the knowledge and tools to be flexible—to restructure, reskill or upskill staff in an organized and thoughtful manner in order to respond to current needs as well as changing and unplanned circumstances.

Appendix

References:

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EPA Actions to Enhance Employee Engagement

At the national level, EPA's Employee Viewpoint Survey and EEI results have inspired management to be more responsive to employee's needs, particularly in the areas of internal communications, linkage to the agency's mission and career development. First, the agency has enhanced its intranet site and produces a weekly *This Week@EPA* newsletter to increase employee awareness of and connection to the agency's work and to each other. Second, EPA's senior leaders launched *Skills Marketplace* and *Talent Hub*. These tools simplify the application, review and hiring process for details, allows employees to experience different work environments, promotes professional networks and strengthens the agency's *One EPA* culture. Third, to increase employee awareness of and engagement with senior executives, the EPA Human Resources Council developed and promotes the use of *Senior Leader Panel* discussions during national meetings that take place across the country.

At the local level, individual program and regional offices have done much to foster a healthy workplace environment through culture building activities, leveraging software resources to facilitate effective communication and purposefully recognizing the work EPA employees are doing every day. Various offices have used open "office hours" to designate preferred times for discussion about increasing engagement, some offices host new employee brown bag lunches, and some organize open discussions to showcase the important work they are doing every day to protect human health and the environment. The agency, as a whole, has stayed relatively stable and shows employee engagement is a strength according to the EVS' employee engagement index over the past 5 years. Individual offices have made significant increases in the EEI based on the quality of both their workplace environment and leadership.

Figure 10.1: Number and Location of EPA's Agency-Specific MCOs

Program Office/ Region	EPA Specific MCOs by Occupational Series Count of Permanent Employees					Grand Total
	0401	0819	0830	1301	1320	
Office of the Administrator (AO)	9	3		10		22
Office of Air and Radiation (OAR)	14	94	55	177	14	354
Office of the Chief Financial Officer (OCFO)						
Office of Chemical Safety and Pollution Prevention (OCSPP)	250	14		45	79	388
Office of Enforcement and Compliance Assurance (OECA)	4	36	1	29	23	93
Office of General Counsel (OGC)						
Office of Inspector General (OIG)				2	1	3
Office of International and Tribal Affairs (OITA)						
Office of Land and Emergency Management (OLEM)	8	25	1	71	10	115
Office of Mission Support (OMS)		1	6	3		10
Office of Research and Development (ORD)	277	72	5	257	80	691
Office of Water (OW)	47	55		69	11	182
Region 1	38	116		75	13	242
Region 2	53	182		178	16	429
Region 3	81	114		159	18	372
Region 4	112	196		161	24	493
Region 5	59	157		211	22	449
Region 6	55	124		144	17	340
Region 7	53	64		105	16	238
Region 8	16	74		117	8	215
Region 9	61	122		111	4	298
Region 10	29	53		91	13	186
Grand Total	1166	1502	68	2015	369	5120

Figure 10.1: Number and Location of EPA's Agency-Specific MCOs